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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,577	03/01/2004	Sunil G. Warrier	02-506	9868

34704 7590 12/28/2006

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EXAMINER	
ONEILL, KARIE AMBER	
ART UNIT	**PAPER NUMBER**
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/790,577	WARRIER ET AL.	
	Examiner	Art Unit	
	Karie O'Neill	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2-9 and 17-27* is/are allowed.

6)☒ Claim(s) *10-16 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Applicant's amendment filed on November 24, 2006, was received. Claims 2-10 and 17 were amended. Claim 1 has been cancelled.

Claim Rejections - 35 USC § 102

2. The Claim rejections under 35 U.S.C. 102(b) as being anticipated by Hartvigsen (US 6,224,993 B1) with regard to Claims 1, 3-7, 11 and 14-16 are withdrawn, because independent Claim 1 has been cancelled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10-16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartvigsen (US 6,224,993 B1)in view of Badding et al. (US 2004/0028975 A1).

With regard to Claim 10, Hartvigsen et al. disclose in Figures 1 and 2, an electrolyte assembly for solid oxide fuel cells, comprising: an electrolyte member (201) defining a cathode side and an anode side and having an active area and an edge portion (column 3 lines 25-28); a cathode disposed on said cathode side; and anode disposed on said anode side (column 1 lines 46-54); and at least one electrolyte support member (200) positioned adjacent to said edge portion of said electrolyte and having an opening (230, 231, 232) positioned over said active area. The electrolyte support

member is represented by a flat plate with slit-like openings extending across the support member. Ribs extending from one side of an edge portion to the opposite side of an edge portion are formed from the material remaining connected after the slits are formed, as seen in Figures 1 and 2.

Hartvigsen et al. do not disclose wherein the electrolyte further including via lines for communicating said anode and said cathode through said electrolyte, and wherein said at least one electrolyte support member includes ribs extending along said via lines.

Badding et al. disclose in paragraph 0019, the electrolyte (108) including via holes (114) for communicating said anode (110) and said cathode (112) through electrolyte and Figures 1a and 1b show wherein said at least one electrolyte support (104) includes ribs extending along via lines. As seen in Figure 2b, the via holes (214) present in the fuel cell electrolyte (208) are filled with via fillers or interconnects (204), which can also be called supports, that extend along the via holes and the electrolyte sheet in an elongated or rib formation for supporting the electrolyte. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use via holes in accordance with the Hartvigsen et al. assembly, because the Badding et al. reference teaches that the electrodes do not form continuous layers on the electrolyte sheet, but instead define discrete regions or electrochemical cells which are then connected in series, parallel or a combination thereof by one or more electrical conductors.

With regard to Claims 11 and 16, Hartvigsen et al. discloses in Figures 1-3, wherein at least one support member (12) is in the shape of strip-like ribs and has sides extending along said edge portion (24), and wherein said ribs extend between opposite side members. In column 4 lines 34-40, Hartvigsen et al. discloses, the support providing means comprising support members being laminated to the electrolyte plate and extending to the outer peripheral regions of the electrolyte plate. As can be seen in Figures 1 and 2, the support plates are provided as a grid wherein ribs extend between side members of the support plate.

With regard to Claims 12 and 13, Badding et al. discloses in paragraph 0023, the electrolyte sheet (108) and via holes (114) being sintered to form electrical conductors (104) and the electrical conductor (104') being bonded to the electrolyte sheet (108) in paragraph 0021). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to sinter or bond the ribs of the support member to the via holes of the assembly of Hartvigsen et al., in order to reduce the stress put on the support member and electrolyte at room temperature.

With regard to Claims 14 and 15, Hartvigsen et al. discloses wherein said ribs and electrolyte support member comprise electrolyte material, because the ribs are part of the support members and each of the upper and lower support members comprise material substantially identical to the electrolyte (column 3 lines 48-50), which would then essentially make the support material and the electrolyte material to have substantially the same CTE.

With regard to Claim 28, Hartvigsen et al. discloses wherein the electrolyte member (11) is made of yttria stabilized zirconia (column 3 line 51) and wherein said grid or support plates (14, 16) define a plurality of openings (230, 231, 232) between said ribs (Figures 1 and 2), and electrolyte elements are positioned in said openings because the support plates and electrolyte member are formed as part of a unitary, integral structure (column 3 lines 44-46) and are made of the same materials.

Allowable Subject Matter

5. Claims 2-9 and 17-27 allowed.

6. The following is an examiner's statement of reasons for allowance: the closest prior art, Hartvigsen et al. (US 6224993 B1) and Badding et al. (US 2004/0028975 A1), do not teach or fairly suggest the electrode assembly for solid oxide fuel cells including via lines for communicating said anode and cathode through the electrolyte and at least one electrolyte support member including ribs extending along via lines provided as a grid with a first group of ribs extending between side members in a first direction and a second groups of ribs extending between side members in a second direction whereby the first group of ribs and the second group of ribs define points of intersection.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill
Examiner
Art Unit 1745

KAO

DAH-WEI YUAN
PRIMARY EXAMINER